

**Expert Review Panel
Meeting Summary
October 20 and 21, 2005
Harbor Steps Conference Center**

Panel Members Present: Darlene Cimino-DeRose, Alan Kiepper, William Lorenz, Steve Lundin, Mike Meyer, Thomas Schmitt, Siim Sööt, Alonzo Wertz; John Howell (Panel Administrator)

Speakers:

Sound Transit staff – David Beal, Don Billen, Eric Chipps, Joni Earl, Ron Endlich, Ahmad Fazel, Bob Harvey, Alvin Ikoku, Paul Matsuoka, Brian McCartan, Martin Schachenmayr, Matt Shelden, Andrea Tull;

WSDOT staff – David Dye;

Consultants – Bruce Emory (Manuel Padron and Assoc.), Robert Harbuck (Parsons Brinckerhoff Quade and Douglas)

Thursday, October 20

Mike Meyer called the meeting to order at 8:35 AM.

Introductory Comments

Joni Earl (Sound Transit):

Ms. Earl thanked the Panel for their June 23, 2005, letter with preliminary findings and input for the Sound Transit Board. The Sound Transit Board adopted the Long-Range Plan (ST2) map at its July 7 meeting, and asked the Subarea Forums to propose and prioritize potential projects in each subarea. They returned lists totaling approximately 100 projects by September 30 deadline. That list has been further reduced by Sound Transit staff to 81 projects

In planning for ST2, Sound Transit will take advantage of its experience and knowledge from implementing Sound Move. A key issue is cost estimating. For Sound Move, there were challenges in cost control and scope control. Sound Transit now has a great deal of cost data. Sound Transit has instituted several internal work teams to provide a thorough review of plans and estimates against industry standards, and experience at Sound Transit and elsewhere. These review teams are: Construction Feasibility, Capital Cost, Operations, Project Control, Financial and Plan Writers.

Ms. Earl asked for the Panel's advice on the assumptions regarding the use of contingencies, particularly for projects where planning and engineering work will be at less than five percent of final design.

Questions from the Panel

Q. What is the status of the Phase I projects?

A. Ms. Earl gave the following summary and provided a one-page status report the next day.

- ST Express (regional express bus): Of 41 capital projects, 16 are in service, seven are in construction and 10 in final design.
- Sounder (commuter rail): Nine of 12 stations are open. There are four round trips per day on the south corridor and two of four operating on the north corridor. Ridership on Sounder is now 800 per day between Everett and Seattle and 5,400 per day between Tacoma and Seattle.
- Link Light Rail: Tacoma Link is operating, and construction is underway on Central Link. Overall, the Central Link light rail project is 9 percent under budget (Note: as compared to the revised baseline budget, not the original Sound Move budget). The Seattle Downtown Transit Tunnel closed last month for construction, and the transition went smoothly to move the buses to surface streets. Sound Transit has completed a preliminary agreement with the Port of Seattle on the final design to bring light rail to Sea-Tac Airport. Preliminary engineering is complete for North Link to the University of Washington. The Sound Transit Board recently made the difficult decision to delete the First Hill station because of the construction risks for a tunnel in the soils at that location.

Q. From whom is Sound Transit purchasing light rail vehicles?

A. The manufacturer is Kinkisharyo. The first one will arrive in October 2006.

Q. Was a highway realignment needed to bring light rail to the airport?

A. There was a challenge regarding Highway 518, but Sound Transit, the Port and Washington Department of Transportation (WSDOT) found a workaround for light rail.

David Dye (WSDOT):

Mr. Dye thanked the Panel for their continuing work, and reviewed their charge—in brief, to review the methodology and plans for ST2 to be sure they are being conducted in an appropriate manner. The planning for ST2 is being done in the midst of delivering ST1, and also in the context of highway packages passed at the state level, some of which would be impacted if voters repeal the funding package in a ballot measure in November.

Question from the Panel

Q. Would the ballot initiative impact ST2?

A. There are no specific highway improvements in ST2, but funding for direct access ramps from high-occupancy vehicle (HOV) lanes is being considered in ST2 planning. There are some projects funded by the gas tax (HOV lanes, highway expansions and improvements, and multi-modal improvements) that could have some affect on ST2 projects.

Sound Transit Activities Since the Last Panel Meeting

—Paul Matsuoka (Sound Transit)

(See handout “ST2 Planning Overview” and Tab 4 in the meeting notebook.)

Mr. Matsuoka summarized ST2 activities since the Expert Review Panel last met. The Sound Transit Board approved the Draft Long-Range Plan in April, followed by public review and finalizing of the Supplemental Environment Impact Statement (SEIS), including review of more than 1,000 comments on the draft. The Sound Transit Board adopted the Long-Range Plan in July, including six major changes to the map. These changes are:

1. Putting arterial bus rapid transit (BRT) on Highway 99 in the north corridor.
2. Adding a description of the levels of BRT.
3. Designating the Northgate to Bothell corridor and 520 corridor as future high-capacity transit corridors, but with no recommendation yet on the technology.
4. Extending to Burien city center the south end of the I-405/Highway 518 corridor for high-capacity transit.
5. Extending Tacoma Link Light Rail to Tacoma Community College.
6. Narrowing the options for I-90 to either light rail for BRT convertible to light rail.

The Sound Transit Board Chairman asked the Subarea Forums for their help in prioritizing the 500 to 600 potential ST2 projects, keeping in mind the criteria that the Board adopted. The forums submitted their lists by the end of September—a total of approximately 100 projects. In preliminary screening, Sound Transit staff pared the list to 81 projects. Staff is now analyzing the projects in terms of cost, ridership and potential benefits, and will consider them against the agency’s financial capacity. Each of the projects will undergo separate review by the internal Sound Transit work teams (see Joni Earl’s comments on page 1 above).

In the first quarter of 2006, staff will develop a draft plan to send out for public comment. At the end of the second quarter 2006, the staff will forward the revised ST2 Plan to the Board for adoption. It is possible that there will be a joint Sound Transit and roads package on the Fall 2006 ballot, but the Board has not yet decided when to put the ST2 package to the voters. (The roads package is being prepared by the Regional Transportation Improvement District – RTID.)

Questions from the Panel

Q. What guidance were subareas given to create their list of priorities?

A. This summer, the Board discussed what makes high-capacity and regional transit work, and developed a set of criteria for successful projects. (See the discussion of criteria under Project Evaluation Methodology, p. 13 below.) These criteria were given to the Subarea Forums. The staff screened the projects the Subarea Forums submitted against the criteria. Sound Transit will likely not be able to fund all 81 that matched the criteria, however.

Q. Were transit-oriented development and land use part of the criteria?

A. The criteria mainly focused on transit, although one criterion relates to the fit with the Growth Management Act, under which certain areas are “urban centers,” which will be important to serve with transit.

Follow Up on Questions and Responses from the April Panel Meeting

North Link

— Ron Endlich (Sound Transit)

(See handout “North Link Briefing” and Tab 5 in the meeting notebook.)

North Link extends from the Downtown Transit Tunnel as a grade-separated line to Capital Hill, the University District and Northgate. Preliminary engineering (30 percent design) is complete, plus a risk assessment and preliminary cost estimate.

The Sound Transit Board discussed the proposed First Hill stations in two meetings in July. The First Hill station poses construction risks because of the variable and challenging soil conditions, the station depth, and the complexity of construction methods needed. There is also procurement risk because of limited competition, so this would limit control over costs and timing. In addition, there are timing challenges since the First Hill station is on the critical path of the North Link construction. In addition, there are significant constraints at the site location because the surrounding area is quite dense.

The Board decided to modify the route by removing the First Hill Station, and to propose the project from the downtown tunnel to the University of Washington stadium for federal funding under the Federal Transit Administration (FTA) “New Starts” program. The Board also asked staff to work with King County Metro and the City of Seattle to analyze transit service improvements for First Hill and potential connections to Central Link.

Questions from the Panel

Mr. Meyer reminded the Panel that the Board’s decision not to build the First Hill Station is part of Sound Move, not ST2. However, the analysis of alternatives for serving the First Hill community will be included in the work underway on ST2.

Q. Looking at the First Hill Station in terms of subarea equity, could the area absorb the financial risk of the station?

A. The risk was considered in terms of subarea equity and that was not a determining factor. Outside experts in tunnel construction whom Sound Transit consulted concluded that the risks pose too many unknowns to cost out for building the shaft and platform at the needed depth. Sound Transit has experience with similar soils in the work on Beacon Hill. But because of the much greater depth needed on First Hill, the shaft would need a vertical jet grouting method, and no one in the United States has experience with this technique. In addition, there are also schedule and procurement risks.

Q. Could construction be done so First Hill could be added later?

A. The problems would be the same, and it would be difficult to build as part of an operating line. The conclusion was to build now or not at this location.

Q. A 200-foot depth doesn’t seem unusually deep for a transit tunnel in other parts of the Country. Why does it create significant risk here?

A. It is very deep for the kind of soil conditions we have. We would be pioneering the construction techniques that would have to be used.

Q. What has the contractor suggested to reduce risk and cost?

A. They came up with some innovative ideas, and were able to reduce the projected cost. But the cost savings were not significant enough to outweigh the risks and unknowns. Their biggest concern was to stabilize the ground to build the shaft, since there is a lot of water and sand at the level of the station. The best technique for stabilizing is to freeze the ground, but this does not work well for a deep shaft.

Q. It is a concern to bypass a significant and growing area. First Hill has not only dense population, but also several hospitals and major employers. Has Sound Transit considered that bypassing the area has serious implications for the area's economic future?

A. The Board agreed that this was a difficult decision and asked for staff to work on developing other transit connection options.

Q. What does deleting the station do to ridership? Have you revised the north corridor ridership estimates without the First Hill Station?

A. Serving First Hill would add 5500 riders. But the line without First Hill still meets the criteria for New Starts funding. Revised ridership estimates are underway.

Q. Does deleting the First Hill station change the line route?

A. Yes, it shifts slightly to the north (about four blocks) to provide a more direct route from the downtown tunnel to Capital Hill.

Q. What is the walking distance to the closest stations, and are they downhill?

A. It is approximately an 11-minute walk from the location proposed for the First Hill Station to the Capital Hill station location. The other closest station would be University Street downtown, but that involves a steep hill (downhill from First Hill) and the obstruction of I-5 to cross. The terrain between First Hill and Capital Hill is flatter, but there is still some rise to the walk.

Q. Is the Capital Hill station close enough to the hospitals? Will the hospitals be accessible by the elderly and mobility-impaired?

A. The station would not be an easy walk for these riders. But even the proposed First Hill station location was a distance from some of the hospitals.

Q. In the context of ST2, does the planned light rail station at the University of Washington suggest any limits on the form of transit to Northgate?

A. The light rail station at the University is not considered a terminus for the light rail line.

Headways in the Downtown Transit Tunnel

— Ahmad Fazel (Sound Transit)

For the initial light rail segment, there will be 6-minute headways and 60 buses per hour during peak hours in the tunnel. There will be physical separation between the bus and light rail lines in tunnel tubes. For University Link in ST2, there will be more ridership demand, so Sound Transit is planning for 5-minute headways between the University of Washington and downtown Seattle. This would reduce the number of buses in the tunnel to 45 to 50 per hour in each direction.

To go to Northgate, the demand would increase again. At that point, the tunnel might not support joint light rail-bus operation, so it would become rail only. There would be 5-minute headways between Northgate and downtown, and 5-minute headways to the Eastside if light rail is chosen for that route. North of downtown, the signal system will support up to 90-second headways. In practical terms, that means operation at up to 2- to 2½-minute headways.

Questions from the Panel

Q. How many cars will there be per train? What is their rider capacity? Is the seating parallel or perpendicular?

A. There will be four cars per train. Each car has 74 seats and, with standing room, can accommodate up to 200 people. At 2½-minute headways, they could carry up to 17,000 people per hour. There is both parallel and perpendicular seating.

Q. Will the signal be communications-based train control?

A. It will be close to this but not 100 percent.

Q. Have you identified where the key constraints are in the system, such as the merge in the tunnel for cars from the Eastside and north-south lines? Merge points create issues in day-to-day operations since they are less predictable with moving trains, especially at peak periods. Slight delays at one point can have a big effect on the system.

A. Yes. The segment on Martin Luther King Way will have some traffic signals since the trains are at-grade, and the Eastside trains will be at-grade, though separated from road traffic. The planned 2-1/2-minute headways can absorb delays of 90 seconds.

Q. If the light rail extends to Tacoma, will there be need for more frequent service?

A. Extending the line south would not require more than 5-minute headways.

Q. When service is more frequent than 5-minute headways and the buses can no longer operate in the tunnel, where will they go?

A. Many of the buses will be replaced by the light rail service. The others will travel on surface streets. The switch of tunnel buses to surface streets that took place last month for the tunnel construction work has gone very smoothly.

Capital Cost Estimating Methods

— David Beal (Sound Transit) and Robert Harbuck (Parsons Brinkerhoff)

(See the presentation materials, “ST2 Capital Cost Estimating Methods” and Tab 7 in the meeting notebook).

Mr. Beal reviewed the purposes of cost estimating, the general approach to ST2 capital costing, and the lessons learned from the construction of Sound Move projects. Mr. Beal noted that the five-step approach to capital costing (define projects, identify unit costs, estimate quantities, calculate costs, and validate against Sound Transit experience) is uncommonly detailed for the planning stage of a project.

There will be three levels of costing. Each level is different in terms of the level of engineering and the detail in costing.

- Level 1: for big and complex projects that already have advance engineering and are likely anchor projects for a subarea or corridor, such as North Link from the University to Northgate.
- Level 2: for big and complex corridor projects that are higher cost light rail or rail-convertible BRT projects and are likely anchor projects, such as the West Tacoma extension, and the I-90 corridor high capacity transit project.
- Level 3: for lower cost, usually stand-alone projects that generally have smaller budgets. While there is less detailed engineering done for Level 3 projects, their costs are estimated based on Sound Transit’s real-life experience.

For the cost estimates, all costs are in 2005 dollars. But for the financial plans, the costs will be inflated to the year of expenditure, based on Sound Transit's inflation projections.

Questions from the Panel

Cost Estimating Goals and Lessons Learned

Q. What is meant by the use of the term “conservative cost estimating”?

A. Sound Transit attempts to create realistic estimates—costs for which the projects really can be delivered. The people on the cost estimating teams have direct experience with the type of projects they are reviewing. They are asked the following questions, “As we have described the project, would you expect to hand this to a project manager in five years and hold them to the costs?” or “Should the agency expect to deliver this project at this cost, and would you be willing to be held responsible?”

Q. How does Sound Transit get a handle on impact mitigation at the planning stage?

A. In the projects Sound Transit has completed, mitigation typically runs at 15 percent of construction cost. The cost estimating sheet for every project includes descriptions of special considerations, such as a project near a wetland. For the rail stations staff looks at various kinds of impacts, such as noise abatement. There is now a large body of staff who know what it takes to build in our area, the affect of different soil conditions, and the wide range of considerations and demands that may come from the public.

Q. How aggressively has Sound Transit sought out opportunities for private contributions to construction?

A. In Sound Move, Amtrak and WSDOT were to fund some of the needed improvements but were unable to do so. Sound Transit had to find new dollars. The agency has approached some potential partners, such as the sports teams, regarding the Safeco/Qwest Field station. However, little interest has been expressed in private participation. For ST2, Sound Transit is taking a conservative approach in its planning, and not assuming there will be significant contributions from outside partners. Although opportunities for private contributions to ST2 projects may exist, to date the agency has not been aggressively looking for funding partners.

Q. It might be worth brainstorming potential private contributions. Montreal, for example, had significant contributions from the retail and commercial sectors. Experience in other cities suggests that property values near the stops will increase dramatically. Has Sound Transit considered the use of local improvement districts near the light rail stops?

A. No. However, a local improvement district partially funded the Downtown Transit Tunnel, and there is an improvement district proposed for the Lake Union streetcar project.

Q. What types of projects have created the greatest challenge in accurately estimating costs?

A. The most typical are where there were cost overruns for work done underground—poor or hazardous soils, utility problems, etc. This is difficult to predict on a project-by-project basis, but the agency's estimates have improved with experience. Soil conditions often are difficult because of wetness, including the existence of unanticipated underground streams. There are also many projects with hazardous soils.

Q. Related to third parties, does Sound Transit have interlocal agreements with local communities?

A. For Sound Move there were no interlocal agreements in advance of creating initial project budgets. There will not be interlocal agreements in place in advance of a vote on ST2. For ST2 Sound Transit is working to get the jurisdictions to understand all planning level assumptions, based on conversations about the scope for each project.

Cost Estimate Tables

Q. The August draft report on cost estimating used ranges of contingency for each stage of project development. In the revised tables it appears that Sound Transit chose the low end of the range for each stage of development. Why were the low-end contingency factors chosen?

A. The choice was based on engineering judgment and experience for what is typical. But the figures will be adjusted if there are special considerations for a particular project.

Q. The revised contingency factors appear to be low, compared to experience elsewhere. Have you considered including a contingency for unallocated third party expenses that come up in negotiation after the design phase?

A. Sound Transit develops the scope definition to indicate third party costs, and to estimate these based on Sound Transit's experience. This ties closely to project definitions.

Q. Why would unallocated contingency for planning be less than for engineering?

A. In the early planning stage, the methods to develop cost estimates allocates uncertainty to individual cost elements.

Q. How does the methodology account for construction management costs?

A. Construction administration and management is under the "Soft Costs" category. No projects in the ST2 package will be at the bidding stage, so administration will be based on recent Sound Transit experience.

Q. Is it assumed that the low bid will be within 5 percent of the engineers' estimate?

A. In Sound Transit's recent experience, the bids have been below the engineers' estimate.

Q. Are there examples where the actual build cost exceeded Sound Transit's estimate?

A. For projects that exceeded the original Sound Move budgets, often the first two change orders were for poor soils and site conditions, and the change orders would exceed the available project contingency. Recent experience shows that once projects are out of the ground, the change orders are running at 1 – 2 percent of the bid price.

Information Requests from the Panel

- The Panel would like to see summary data for Sound Move projects comparing original cost estimates, with revised baseline cost estimates, bid estimates, change orders, and final cost (if complete).
- The Panel would like to see a complete version of the revised Cost Estimating Methodology report.

Comparison to Sound Move Estimating Process

— Martin Schachenmayr (Sound Transit)

There are three areas in particular related to cost estimating for which Sound Transit has changed its approach since Sound Move:

- **Scope definition:** Sound Transit is now emphasizing defining the scope carefully in the planning stage. In Sound Move, the projects' scopes were not well defined, leading to scope growth.
- **Contingency:** A "conservative" cost estimate does not protect against scope growth. Sound Transit is now defining the contingency based on design engineering and unallocated costs.
- **Schedule integration:** The schedule for Sound Move was aggressive, so the assumptions about inflation were low. Depending on the project schedule, an escalation factor needs to be built in.

The cost estimating process now proceeds as follows:

1. Define the scope. To protect against later scope growth, it is important to define what is *not* included. Sound Transit is also working to get third parties' understanding of scope.
2. Detail the work.
3. Define contract units – what is and is not in each piece.
4. Develop the project schedule – how long will it take to complete each task?
5. Estimate the costs.

Sound Transit develops the cost estimates in contractor style to simulate construction: detailing exactly what kinds of materials and supplies are needed, when and for how long for each activity. They also integrate inflation assumptions through the schedule detail, using different inflation indices for construction, professional services and right-of-way.

Questions from the Panel

Q. What is your assessment of Sound Transit's experience with cost estimates compared to completed projects?

A. Few projects are completely done, but the contingency hierarchy developed as part of revised baseline budgets appears to be adequate so far.

Q. Won't the proof of the methodology be in the amount of the change orders?

A. To anticipate this, Sound Transit performs risk assessments, and notes the number of interfaces among the contractors. The agency also is generally using a higher contingency for underground work.

Briefing on I-90 Corridor High-Capacity Transit Issue Papers

Status of Mode Choice Decision

— Paul Matsuoka (Sound Transit)

(See Tab 8 in the meeting notebook.)

After reviewing the alternatives for the Eastside, the Sound Transit Board in July narrowed the mode choices to light rail and BRT- convertible to light rail. The Board also selected the

Seattle–Bellevue–Redmond corridor as the preferred route for further analysis. Before choosing a preferred mode alternative, the Board asked the staff to investigate what a BRT-convertible option would look like, how the conversion would be done, and how the reversible lanes on I-90 will be affected. WSDOT is undertaking a traffic study to explore the impacts on the I-90 center roadway.

Sound Transit expects to complete an issue paper in November on the BRT- convertible alternative, including assessment of the design requirements in the BRT phase to accommodate light rail at a later date, and a description of how the conversion would occur. By the end of 2005, Sound Transit expects to have a first round of cost and ridership estimates for the two technologies, plus the results from WSDOT of the load test and traffic study. The goal is to enable the Board to decide on a preferred mode choice by the end of 1st Quarter 2006.

Questions from the Panel

Q. Will further costs for BRT/HOV be developed?

A. Sound Transit staff included this option in the initial set of options for the Long-Range Plan. Since the Board did not select BRT/HOV as one of the options for further study, there will be no additional cost estimating or ridership analysis in this phase of planning for ST2.

Q. To prepare the alternatives analysis for the FTA New Starts program, Sound Transit will likely have to include BRT/HOV. Would it be wise to include further analysis of BRT/HOV alternative now?

A. The current focus is the programmatic level of decision. Once that decision is made, staff will do the project-level analysis. If further analysis of alternatives is required it would be completed at that time.

Panel Comment

Panel members commented that the BRT convertible option will include considerable costs for the conversion to light rail, likely making it a less attractive option compared to building light rail.

I-90 Bridge Load Test

—David Dye (WSDOT)

(See handout “I-90 Bridge Load Test.”)

Currently the I-90 bridge has three lanes eastbound, three lanes westbound and two “reversible” lanes in the center roadway. It is a key commuting route, used by single occupancy, HOV and bus commuters, and is the only route to and from Mercer Island. It was designed in the early 1980s to accommodate future light rail in the center roadway. But light rail is now 30 percent heavier than the design criteria in 1980.

WSDOT conducted load tests this summer to confirm their computer modeling for running light rail on the bridge. They tested the equivalent of four-car light-rail trains in various configurations and tested speeds from 0 to 40 miles per hour. A full analysis is due in November,

but the basic conclusion was that the bridge could handle both light rail and auto and truck traffic.

Questions from the Panel

Q. Why were floating bridges used across Lake Washington originally?

A. The unique combination of the distance across the lake, deep water and poor soils led to the choice of floating bridges.

Q. Is there any example of light rail use on a floating bridge elsewhere?

A. WSDOT has not found any. The testing to date shows that the rail can handle the bridge and the bridge can handle the rail. The most challenging aspects of the design are the transition points and the effects of weather.

I-90 Center Roadway Traffic Analysis

—David Dye (WSDOT)

(See Tab 8 in the meeting notebook.)

Converting the center roadway of I-90 would require two-thirds to three-quarters of the single-occupancy vehicles currently on the bridge to move to the outer roadway. WSDOT and the Sound Transit Board wanted a full evaluation of the traffic impacts and possible benefits of converting the center roadway to exclusive use by high-capacity transit. The study WSDOT now has underway includes analysis of several scenarios of transit use and roadway investments, the key markets served, the affects on other regional transportation corridors and any resulting differences in traffic safety, plus an operational analysis under several scenarios for use of the center roadway.

The Technical Working Group guiding the study includes representatives of WSDOT, Sound Transit, Puget Sound Regional Council (PSRC), King County Metro, and the cities of Bellevue, Mercer Island and Seattle. They expect to have draft findings by the end of December 2005, and a final report in March 2006.

Question from the Panel

Q. For the strategies and techniques being considered, is the reference to “congestion pricing” for HOV lanes the same as a HOT lane?

A. In this context, yes. There has been much discussion at the state and regional level about the possibilities of tolling.

Panel Comment

- In the measures of effectiveness, travel time needs to be defined between an origin and a destination time pair.

The meeting took a recess at 1:50 PM, to continue as a bus tour of the I-90 bridge and environs. The Panel toured the route of the “representative alignment” for the I-90 corridor project, including across the I-90 bridge, Bellevue Way to downtown Bellevue, the Bel-Red Road corridor to Redmond, downtown Redmond, and back to Seattle across SR 520.

Friday, October 21

Mike Meyer called the meeting to order at 8:30 AM.

Project Evaluation Methodology

—David Beal (Sound Transit)

(See the draft “System and Project Evaluation Methodology” in Tab 9 of the meeting notebook.)

The goal of the project evaluation is to provide a comprehensive, understandable and reliable procedure for project selection. This will help the Sound Transit Board in reviewing project benefits and costs, identifying key differences among projects, and selecting a package of projects for ST2.

Mr. Beal reviewed the 11 evaluation criteria that the Board endorsed in July 2005. These are: Travel time and reliability; System integration; Connectivity and mobility; Ridership; Capital costs; O & M costs; Environmental benefits; Land use and development; Customer experience; Public support; and Risk

Sound Transit staff screened the initial 100 ST2 projects proposed by subareas using the following criteria: Consistent with Sound Transit’s Long-Range Plan; Located in or serving an area designated by PSRC as a regional center; Logical extension or enhancement of Sound Move investments; Enhances transit capacity, speed or frequency; Can be implemented independently of other proposed investments; Subarea priority; Sound Transit priority.

Use of these criteria screened out approximately 10 projects proposed by the subareas, leaving 81 projects for further analysis.

Questions from the Panel

Criteria

Q. What does “reliability” mean in the criterion for “Travel time and reliability”?

A. This is a prediction based on what is known about the project. For example, a project in its own right-of-way or in a priority BRT lane will be more reliable than a project moving with other traffic. The travel time is developed through a forecasting model, but it can’t predict delays from weather, accidents, etc.

Q. The travel time in minutes is interesting, but is it compared to something?

A. Travel time will be compared to today’s time.

Q. Be cautious when looking at duplication of services. [“Avoiding competitive, duplicative services” is one of the ST2 objectives.] In larger metropolitan areas, especially in a tight corridor, there may be bus, light rail and other transit all without being duplicative. Apparent “duplications” might serve different markets.

A. The markets served will be considered. Avoiding duplication and competition is part of the charge from the state legislature, so Sound Transit staff needs to raise these issues for the Board.

Q. Shouldn’t subarea equity be included in the decision criteria?

A. Based on Sound Transit's financial policies, the package presented to the Board will have to meet subarea equity requirements.

Ridership

Q. In looking at "new riders," does Sound Transit differentiate between those who change from one form of transit to another, as well as those who are totally new to transit?

A. This criterion reflects riders who have converted from auto or foot to transit.

Capital Cost

Q. In the capital cost review, why are current year dollars used?

A. This allows comparison of project costs on an even level. Year of Expenditure estimates will also be developed for each project.

Q. At the project level, does Sound Transit compare costs using capital cost per mile?

A. Yes, this is one of several methods used to express project costs.

Operations and Maintenance (O&M) Cost

Q. At the systems level, is Sound Transit including the recovery percentage? In the early years, capital costs are higher, while the later years should reflect more O&M costs.

A. This is accounted for in the financial plan. It will show the total cost of O&M over the life of the project.

Q. Does the financial plan include the fare box recovery ratio?

A. Yes. Right now the ratio is in the high 20s for bus and low 20s for rail.

Environmental Benefits

Q. The slide says that project-level benefits are not measurable during planning. However, agencies can estimate them, for example air quality, and energy consumption. They may not be measurable but can be quantified.

A. Sound Transit will provide broad estimates.

Land Use and Development

Q. At the system level, one of the criteria includes the phrase, "Transit mode share in designated centers." How big are these "centers?"

A. Not too big. For example, a center is Downtown Bellevue, as opposed to all of Bellevue.

Q. Do the development criteria include opportunities for joint development?

A. It is difficult to evaluate the types of opportunities that might take place at a particular site.

Q. Is there a policy on station area land purchases?

A. Where it involves federal funding, the purchases need to abide by the federal restrictions.

Q. Do the federal regulations allow Sound Transit to consider the difference in development around a rail stop versus a bus stop? Development is likely to be more dense around a rail stop.

A. The federal requirement is that the planning process be parallel to the federal process. The federal process doesn't allow forecasting of development unless it is in the region's long-range plan.

Risk

Q. The methodology lists high-risk components as one of the criteria. Don't you need to balance risk against benefits, such as for tunneling?

A. The benefits will show up in the other criteria areas.

Q. Is the risk financial or liability risk?

A. It could be either of those or construction risk.

Panel Comments

- The subarea equity issue needs to be evaluated with the capital cost criteria. Capital costs must be evaluated for each projects, but the sum of the projects must conform to subarea equity principles.
- The farebox recovery ratio in the planning documents may be high for bus. If you take out New York City, the national fare box recovery ratio is not higher than the 20s.
- Construction of high-capacity transit systems can result in tremendous development opportunities. But it takes proactive work in the planning stage to explore the possibilities with developers and jurisdictions. Availability of excess right-of-way, which should be known early in the planning process, gives the agency an opportunity to work on joint development. But the agency needs to actively pursue these opportunities. Joint development offers important revenue opportunities.
- Aggressive pursuit of development in areas around stations doesn't seem to have a high priority here. But it can be a good investment of local dollars. For example, in Atlanta, MARTA bought a large property at the Piedmont Station, which has become a shopping center.
- It will likely be difficult to use the "safety" criterion within the Customer Experience category when comparing projects. Would you say that one project is safer than another? Safety can be evaluated on the system level, however.
- Generally, the more quantitative the evaluation measures are the more useful they will be to decision makers. Qualitative measures are less useful as a comparison tool. For example, the Customer Experience category is largely qualitative. In the Public Support category, both the system and project level note that this is a qualitative description.
- Panel members suggested calling out environmental justice in the criteria—providing mobility for low-income and minority households. This criterion is part of the application for federal funds.
- There is a danger that a long, detailed list of criteria will yield too much information to understand or be useful. It was suggested should use the criteria to evaluate five projects, and ask a Board member to review it and comment on whether it is a useful exercise. If not, Sound Transit should look for a way to prioritize and pare down the criteria.
- Panel members suggested trying to get a sense from the Board as to which elements the Board considers to be the most important. This weighting may not be as important for the projects that are chosen as for those that are *not* chosen.

Operations and Maintenance Cost Estimating Methodology

— Bruce Emory (Manuel Padron and Associates)

(See handout, “ST2 Operating & Maintenance Cost Estimating.”)

O&M cost models have been developed for Central Link, Tacoma Link, ST Express Buses, and rail-convertible BRT. The models are built by creating line items that correspond with the system characteristics, and estimates are based on current budgets or the experience of peer systems. Mr. Emory provided some sample line item detail sheets, and comparisons to peer systems.

Questions from the Panel

Q. What inflation factor is assumed? What about replacement costs?

A. These are models in 2005 dollars. The escalator will be built in as part of the finance plan, as will assumptions about vehicle and equipment replacement.

Q. In the comparison of peer systems, how much does it change the average if the outliers (high end and low end) are discarded? Perhaps using the median would be better.

A. The result is approximately the same either way.

Light Rail

Q. Why use “revenue per car miles” for light rail cost estimating rather than “revenue per platform miles”?

A. We could use either one. For rail there is not much difference, but revenue per car miles is simpler. The important element at this stage is to be consistent in the measurement used.

Q. For Tacoma Link, will the same cars as in the current system be used for the expanded system? Will they be the same as the Central Link light rail? For maintenance it is more cost effective to use the same types of cars.

A. Sound Transit is looking at upgrading the light rail cars used in the Tacoma system to the same cars as will be used in Central Link.

Rail Convertible BRT

Q. How is Sound Transit accounting for the costs to convert the high capacity transit system on I-90 from BRT to light rail?

A. This is yet to be done, but Sound Transit will include it in the issues for the Board to consider. This will include street mitigation costs for buses displaced from the downtown Seattle tunnel.

Q. When would the conversion to light rail occur? Is the conversion planned in the 20-year planning horizon?

A. The timing of the conversion is not known. The user benefit analysis has not been completed. There is a trade-off between the cost savings that can occur if features that enhance the conversion to light rail are built into the initial design of the project, versus the risk of costly renovation later, when the conversion occurs, because of changes in project design or technology.

Panel Comments

- Operations and Maintenance staff should be included as early as possible in discussions about the cost estimating models and design of the systems.
- When looking at data from peer systems, be aware that maintenance costs of vehicles from different manufacturers can be very different.
- Installing cable line conduit in roadways at the time of construction would save money for future conversion to light rail. On bridges, though, this is not as practical.
- The cost for rail convertible BRT should include transition costs in order to create a fair comparison with the light rail alternative.
- The conversion issue lends itself to sensitivity analysis looking at three or more approaches.
- The only conversion in the United States is the Seattle Downtown Transit Tunnel, and Sound Transit has had to modify the original tunnel so that it will work for the system now planned. Sound Transit needs to learn from this experience for any future conversion projects.

Update on ST2 Travel Demand Modeling and Ridership Forecasting

—Bob Harvey and Don Billen (Sound Transit)

(See the papers and reports in Tabs 11 and 12 of the meeting notebook.)

Affect of parking costs. Sound Transit has now applied the new parking cost model from PSRC. It yields approximately a 10 percent reduction on the transit trip model. So the ridership estimates for ST2 projects will be somewhat lower than in the initial Long-Range Plan.

Reliability. Reliability is part of quality of service and has an impact on ridership. One way to judge reliability is the adherence to headways, ranging from “like clockwork” down to “frequent bunching.” Poor reliability creates higher passenger loads on buses because of bunching. It also impacts riders because they have to build time into their schedule to allow for late buses. For example, the Route 7 bus in Seattle ranges from 2 minutes early to 22 minutes late.

North Link service can be compared to current bus service in the same areas. In current conditions, the reliability of buses on Capital Hill rates a D to F grade. University District Express buses, which travel on I-5 and in the bus tunnel, also rate an F. National data for bus on-time performance ranges from 60 – 75 percent on-time. National data on light rail show 92 – 98 percent on-time performance. Sound Transit projects that Central Link will have a very high level of reliability.

Methods. The meeting materials included a first draft methods report. Sound Transit staff intend to revise it by the end of December, including putting more of the data into tables and maps. If PSRC comes out with a new trip distribution model, Sound Transit will revise their analysis accordingly.

Sound Transit now has 2004 base data for ridership from the three county bus systems. The model now enables calculation of the difference before and after construction of a park-and-ride lot.

Mr. Harvey invited the Panel’s comments on the methods by December 1st.

Questions from the Panel

Q. Reliability is difficult to predict. The bottom line is that a fixed guideway system is more reliable than a bus system. The key for any alternative is how to make it as reliable as possible. The transit industry nationally is struggling with this.

A. Reliability has been a key topic at Board meetings and with the public. King County Metro has good data on reliability showing bus speeds back to 1960. Several of the routes Sound Transit is comparing to light rail for North Link are now, in essence, BRT-HOV, since they use I-5 and the Downtown Bus Tunnel.

Public Comment

Mr. Meyer asked if any members of the public present wanted to provide comments.

Will Knedlick expressed concern that Sound Transit will be intentionally creating congestion, instead of relieving it, by pushing automobile traffic out of the HOV lanes on the I-90 center roadway in order to run BRT and/or light rail. He questioned the expenditure of tax dollars if the result increases congestion.

Mr. Knedlick thanked the Panel for asking questions about important issues. He said that the discussion of light rail on the floating bridge left him with questions about reliability, especially in high winds. Specifically, he would like to know what wind speed would require shut-down of the light rail system. He also expressed concern about the amount planned for contingency being too low. Regarding Panel members' questions about subarea equity, Mr. Knedlick said that many people see this as a problem, as many of the costs for Seattle would be covered by taxes from other areas of King County. He encouraged the Panel to get answers to all their questions.

John Niles, Coalition for Effective Transportation Alternatives (CETA), said his group is especially interested in the planned North Link projects. They are concerned about the high cost of getting light rail to the south end of the University District. He said that it is CETA's position that the Legislature should direct the Panel to review this part of ST1, since the planning for ST2 depends on completion of the line to the University District. CETA plans to take this request to the Governor and Legislature. Mr. Niles remarks to the Panel can be found at www.bettertransport.info/erp/.

Don Padelford expressed concerns about the alternatives that have been under consideration for the I-90 bridge. He said that HOV-BRT creates liability issues and adds the cost of the HOV. He believes a Busway HOV is a viable concept, but not Sound Transit's plan that would require use of the Burlington Northern Railroad and transfers downtown. He expressed a number of concerns with Sound Transit's current proposal for a rail-convertible BRT. These include its use of surface streets, requiring transfers, online loadings, and the expense of total grade separation on the Eastside in order to build to the standard of rail.

Mr. Padelford recommended considering the alternative of BRT on HOT lanes, and noted that the alternative will need to be considered in the EIS process. He asked the Panel to recommend that this alternative be added to the planning process.

Richard Harkness provided a copy of the April 25, 2005, paper he sent to the Sound Transit Board regarding Sound Transit's I-90/East King County High-Capacity Transit Analysis issue paper. He said that there are, at base, two choices: light rail and BRT on HOV lanes. He suggested that the choice for light rail makes sense only if: (1) Light rail will cost what the voters were told in 1996 when the vote on Sound Move was taken; (2) BRT cannot handle the needed capacity; and/or (3) Light rail is a better choice for the terrain.

Mr. Harkness provided a detailed list of problems he sees with the assumptions Sound Transit is using in its analysis. These include: the cost assumptions, the conclusion that BRT will not have enough capacity, and the use of light rail in our terrain, given the problems encountered to date with tunneling. He also questioned the assumption that the I-90 center lanes be dedicated to mass transit only, when buses mixed with HOV vehicles can carry more people at a lower cost. His view is that light rail is more expensive, is inconsistent with the I-405 corridor study findings, and would degrade the safety of I-90.

Mr. Harkness said that the studies do not support the conclusion that light rail is the best mode to solve the congestion problem or to provide the needed capacity, and, therefore, questioned the argument that it provides greater reliability. He also expressed concern that the substantive comments that CETA gave to Sound Transit were not given to the agency's engineers to analyze.

Mr. Harkness' remarks to the Panel can be found at www.bettertransport.info/erp/. Additional materials referenced by Mr. Harkness can be found at:

<http://www.bettertransport.info/pitf/issuepaperquestions.htm> and
<http://www.bettertransport.info/pitf/harknessmessage.htm>

ST2 Financial Modeling Methods – Forecasts by Subarea

— Brian McCartan and Alvin Ikoku (Sound Transit)

(See the meeting handout, "Sound Transit Financial Overview.")

Mr. McCartan gave an overview of Sound Transit's financial structure, the Long-Term Financial Plan, current subarea equity parameters, and the financial plan and key assumptions for ST2. Mr. Ikoku described tax forecasting using historic data and a regional tax forecast.

Questions from the Panel

Financial Policies and Model

Q. Were the financial policies confirmed by voters? How can they be changed?

A. Yes, they were part of the ballot authority including the local taxes. They can be changed by decision of the Board.

Q. What is the rationale for not having the Board adopt the financial plan itself?

A. The Board adopts the budget, but the financial plan has some placeholders for information yet to come, so it is not as firm as the budget.

Q. Who built and maintains the financial model?

A. It was built by consultants early in Sound Transit's development and is maintained by Sound Transit staff.

Subarea Equity

Q. How does the subarea equity policy play out for ST2 in terms of revenues and expenses?

A. As currently structured, all plans will be assigned to the appropriate subarea. On the revenue side, funds are identified by subarea. The Board reviews and has the authority to approve the plans. Within the Sound Transit accounting system, costs are allocated by subarea.

Q. For high-capacity transit on I-90 to Bellevue and Redmond, how many subareas are involved?

A. Two. Sound Transit staff are currently assuming the costs will be East King County costs, and would conduct an analysis to determine if the revenue from that subarea will cover the costs. Then the Board will discuss whether another subarea will have substantial benefit, in which case revenue from that additional subarea could be used to cover the costs, too. If one subarea in the I-90 corridor were not to have enough revenue to cover the cost of the service, the Board would have the authority to approve using revenue from another subarea that benefits from the project.

Q. Regarding the “inter-subarea borrowing” listed in the Current Subarea Equity Parameters chart, who makes the determination on borrowing?

A. There is a recommendation from the staff to the Board for the Board’s decision. The Board also has the authority to assign benefits if a project has an impact on more than one subarea. Where routes serve several subareas, the costs are divided up and the subareas agree on them.

Q. When the ST2 financial plan is brought to the Board, will staff include subarea equity again? If so, is there a relationship to equity under Sound Move?

A. Yes, Sound Transit staff will include subarea equity in the ST2 plan. The equity issue is a Board policy. East King County in Phase I incurred no debt and has the most capacity going into ST2.

Tax Forecasting

Q. Does Sound Transit use the state’s tax forecasting?

A. No, the regional forecast by Dick Conway gives Sound Transit a better handle on local revenues. (See the handout, “Sound Transit’s One-Year-Ahead Inflation Forecast Performance.”) Of the three taxes that provide revenue for Sound Transit (sales and use tax, motor vehicle excise tax [MVET], and rental car tax), the Conway forecasts have been very good for retail tax. On the MVET tax, the forecasts have been more conservative. Overall, Sound Transit has done well in the forecasting of revenues. In federal grants, Sound Transit so far has obtained 85 percent of its goals.

Q. How far ahead does Sound Transit forecast revenues?

A. Sound Transit has one set of forecasts for the next year, and another for five years ahead. Sound Transit sales and use tax revenue estimates were only about 0.1 percent off from the prediction made in 1998.

Q. Are best- and worst-case scenarios included in revenue forecasts?

A. Sound Transit runs sensitivity analyses and worst case scenarios, such as to consider how much of a recession the agency could weather.

Q. How does the average growth of the sales and use tax of 4.24 percent relate to the growth in population?

A. The population growth in this time period (1997–2004) was 1 percent.

Q. Does Sound Transit have any required limit on the percentage of tax revenues it can use for debt service?

A. No.

Operation and Maintenance Forecasting

Q. Since this forecasting is a build-up model, how do you apply inflation for the long-term?

A. Sound Transit uses the Consumer Price Index (CPI) for specific cost areas, such as labor and fuel, and 50 percent of the ridership growth rate. O & M cost is a step function of ridership, not an exact forecast. The results work out to approximately 5 percent annual growth in O & M. For ST2, Sound Transit staff will provide an estimate of O & M costs for each piece in 2005 dollars. Then the Finance Group will inflate that based on the CPI. They expect that O & M will grow faster than inflation.

Inflation Forecasting

Q. The Right-of-Way Index ranges from a -2 percent growth in 2002, to more than +6 percent in 2004. This is pretty volatile. How does Sound Transit get to an average of +4.7 percent through the year 2020?

A. Sound Transit uses real estate forecasts and data with econometric models to forecast real estate prices. The agency has used this model for about five years and has data for 10 years.

Q. Does the model take into account the different real estate values in different places throughout the region?

A. Sound Transit uses a region-wide value. There has been a request for a subarea value, but we need 20 years worth of data, which are not available. For this reason, Sound Transit builds in contingency.

Q. What does your historical right-of-way index show?

A. Real estate prices over the last 20 years have been rising rapidly. The average 4.7 percent increase is a 50 percent confidence result. Real estate prices are not distributed normally. Real estate cost is a risk factor.

Q. The concerns for forecasting building cost are similar to right-of-way. Building costs could be much higher because of rising fuel and materials costs, etc.

A. Yes. To account for this, Sound Transit adds contingencies to the forecasts.

Q. Based on historical data, how do your forecasts relate to actual inflation over the last 20 years?

A. The CPI in the United States over the last 50 years averages a 3.9 percent increase per year.

Q. Do you account for the costs for replacement of bridges and other infrastructure?

A. Yes, there is a replacement set-aside. The rolling stock has a 30-year useful life according to the FTA.

Panel Comment

- Right-of-way cost is a large part of a transit project. If there is a big variable in the forecast, it makes a very large difference in the project cost.

Information Requests from the Panel

- The Panel would like to see Sound Transit's original 1998 revenue forecast and the comparison to actual.
- The Panel would like to get data on real estate costs for the last 20 years, including the average annual increase.

ST2 Preliminary Project Screening

— Eric Chipps, Matt Shelden, Andrea Tull (Sound Transit)

(See the handouts, "Potential ST2 Projects for Evaluation," and tables labeled "Potential ST2 Investments" for the subareas [Pierce County, South King County, East King, North King, and Snohomish]).

The goal for the subarea projects is to build on the current (Sound Move) services for all regions. The subregional forums that helped to winnow the lists of potential projects are either existing groups working on transportation issues in their subarea, or, where there was no such group, one that Sound Transit helped to form. They started with more than 500 projects that were in the EIS. While working to reduce the list, the subarea forums in some cases added new potential projects. Sound Transit staff helped the subarea forums work with the criteria for identifying projects. The 81 projects that came out of this process will become the basis for the ST2 program, but it is not likely that all can be funded.

Mr. Chipps briefly reviewed the projects for Pierce County and South King County, Mr. Shelden reviewed the North King and Snohomish projects, and Ms. Tull reviewed the East King County projects.

Questions from the Panel

North Corridor

Q. For the light rail to Northgate, what is the scope for options from First Hill?

A. There are a variety of options, including roadway improvements, additional bus service, a light rail spur from Capitol Hill, and possibly streetcar service.

Q. Could soil conditions be improved by moving the First Hill Station to another location in that neighborhood? Could a new station location avoid the depth of station problem?

A. Sound Transit is reviewing this question, but the conditions appear to be similar through the area.

Q. When will the First Hill alternatives study be completed? Would the resulting project be part of ST1 or ST2?

A. The first phase, to look at options for alternatives, will be done by the end of 2005. The Board has not yet decided in which phase of work to address these station options, but any significant capital expenditures would likely be included in ST2.

Q. For the possible Everett starter light rail, would it be able to connect with Central Link?

A. Sound Transit is analyzing the scope and cost of that service.

Q. Even a starter line would need maintenance and fleet operations facility.

A. Yes, there would be light maintenance in Everett with supporting facilities.

Q. In Snohomish County, is a light rail line to Paine Field still being considered?

A. The Board in the Long-Range Plan Update decided that light rail should be on the I-5 corridor in the north, but has not yet specified the route.

Q. In the East King County projects there are a lot of Park and Ride lots. Will you present these by subarea or by type or both?

A. Probably both ways. Sound Transit is encouraging the conversation to take a regional view, to consider the system as a whole.

Q. For the 81 projects, does Sound Transit have a general idea of the cost?

A. There are no detailed estimates yet. Some projects are probably in the \$1–2 billion range, while others (e.g. bus routes) are in the \$1–2 million/year range. The Board Chairman has indicated that it is not likely Sound Transit will be able to fund them all in ST2.

Information Requests from the Panel

- Panel members are interested in getting more information on the alternatives analysis for the First Hill station.

Outstanding Issues and Next Steps

Letter from Rep. Edward B. Murray

Rep. Murray sent the Panel a letter expressing concern about the Sound Transit Board's decision to exclude the First Hill Station, and asking the Panel to investigate questions about service and ridership impacts as part of ST2. The Panel members discussed whether the questions Rep. Murray posed are part of the Panel's charge, which is to review the assumptions and methodology for ST2.

Sound Transit staff clarified that the Board changed the locally preferred alternative that was submitted to the FTA for New Starts funding to take out the First Hill Station. The Board also asked staff to look at other ways to address the transportation needs of First Hill. As a Sound Transit project, these options are on the list of 81 potential ST2 projects.

The Panel decided that it is part of their charge to see the scope of alternatives that Sound Transit is considering for First Hill so that the Panel can review the methodology and assumptions. The Panel agreed that they need to write a reply to Rep. Murray.

Summary of Issues

John Howell summarized the issues and information requests that Panel members have raised in this meeting.

1. **Capital Cost Estimates** – The Panel had questions about the contingencies used in the estimates, and concerns that they seem to be on the low side. One suggestion was to go back to using a range of contingencies rather than a single number.
2. **Third Party Agreements** – The Panel expressed concerns about getting agreements with third parties (jurisdictions) tied down as soon as possible on the scope of projects. Staff mentioned a policy about getting third party agreements executed when a project is at the 30 percent design stage. The Panel would like to review that policy.
3. **I-90 Cost Estimates** – Based on discussion at this meeting, the Panel wants to conduct further review of the cost estimates and contingencies for I-90 because of the large level of uncertainty around the project.
4. **I-90 Alternatives** – The Panel was struck by the potential inconsistency between the Board’s narrowing of alternatives for the I-90 corridor (light rail and BRT convertible to light rail), versus the approach taken in WSDOT’s traffic study (which will include BRT/HOV in its analysis), and the potential to include BRT/HOV in future federal EIS work it Sound Transit applies for New Starts funding.
5. **Evaluation Methodology** – The Panel made several comments during the meeting. These included:
 - a) Doing some “focus group” testing with Board members of the evaluation criteria and methodology to make sure they are understandable and useful for the Board’s decision making.
 - b) Using criteria that can be quantified rather than qualitative criteria, wherever possible.
 - c) Weighting or showing the relative importance of the evaluation criteria.
6. **O & M Cost Issues** – The Panel encouraged Sound Transit to include operation and maintenance staff in discussions about the methodology and in estimating costs.
7. **Financial Plan** – The Panel had several questions about the financial plan:
 - a) The use of regional real estate inflation rates as opposed to inflation rates by subarea;
 - b) Inflation for O & M costs, and whether the CPI is an appropriate inflation factor to use;
 - c) The need for follow-up and more information:
 - i) 20-year history of real estate inflation and whether it is different than the 4.7 percent factor Sound Transit is using;
 - ii) the experience so far with actual costs as compared with the original estimates; and
 - iii) the construction cost index, and current information on projected construction costs in light of the Katrina hurricane.
8. **Additional Information Needs/Follow-up:**
 - a) Cost history for all Sound Move projects—the original estimate, the bid costs, the revised baseline budgets, the actual construction cost or latest estimates, and, where there are significant differences, the reasons for those differences.
 - b) Review of the BRT convertible light rail issue paper.
 - c) Bob Harvey requested the Panel’s review of the ridership projections.
 - d) Updates on the I-90 bridge study, especially regarding:
 - i) the transitions and any discussions Sound Transit has had with the train car manufacturers; and

- ii) the effects of weather (wind, water) for light rail and buses on the bridge.
- e) Any updates to the Project Evaluation Criteria memos, since the documents presented at this meeting were drafts.

Follow Up and Next Meeting

Letters from the Panel. The immediate follow-up from this meeting includes:

- A letter from the Panel replying to Rep. Murray's letter about the First Hill Station; and
- A letter from the Panel to the three sponsoring agencies with some of the Panel's observations from this meeting included in John Howell's summary list, above.

Requests. Panel members had two requests regarding the meeting materials:

- Include an Executive Summary for each of the reports and long documents in the meeting materials. Different Panel members need different levels of information. Including both a summary and the full document would serve both levels of need.
- In the Agenda, note the Tab number in the meeting notebook where the relevant materials will be found.

Meeting schedule. Sound Transit staff will be putting a preliminary ST2 package together to take to the Board in January 2006 for discussion. By the end of the first quarter 2006, they expect to have a draft package by subarea. The tentative schedule at that point is to get public comment on the draft package in the second quarter, revise it in the third, and take it to vote in November 2006.

Before the Board makes a decision on the draft package, they will need a letter of findings from the Panel. The Panel decided to meet in January to discuss cost and revenue estimates and methodology. The next meeting could be in March to review the assumptions and methods for the ST2 package by subarea, before it goes to the Board.

After the meeting, Thursday-Friday January 5-6, 2006 was confirmed for the next meeting. The meeting was adjourned at 5:08 p.m.

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